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PLANT IMMIGRANTS.

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Foreign Seed and Plant Introduction.

EXPLANATORY NOTE.

This multigraphed circular is made up of descriptive notes furnished mainly by Agricultural Explorers and Foreign Correspondents relative to the more important introduced plants which have recently arrived at the Office of Foreign Seed and Plant Introduction of the Bureau of Plant Industry of the Department of Agriculture, together with accounts of the behavior in America of previous introductions. Descriptions appearing here are revised and published later in the INVENTORY OF PLANTS IMPORTED.

Applications for material listed in these pages may be made at any time to this Office. As they are received they are placed on file, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it as well as to others selected because of their special fitness to experiment with the particular plants imported. Do not wait for the annual catalogue entitled NEW PLANT INTRODUCTIONS which will be sent you in the autumn and in which will be listed all plants available at that time. Regular requests checked off on the check list sent out with the catalogue are not kept over from year to year. If you are especially interested in some particular plant in the catalogue write and explain in detail your fitness to handle it.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders and others interested.

David Fairchild,

Agricultural Explorer in Charge.

May 17, 1919.

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Abies mariesii (Pinaceae), 47198. **Fir.** From Taiwan. Seeds presented by the Arnold Arboretum, Jamaica Plain, Mass. This differs from the type in having longer cylindrical cones and black seeds. *Abies mariesii* is a tree, 40 to 50 (occasionally 80) feet high, of compact, pyramidal form; the young shoots are very densely covered with red-brown down which persists several years. The leaves, from one-third to an inch long and one-twelfth of an inch wide, are dark shining green and deeply grooved above, glaucous beneath with two broad bands of stomata. The lower ranks spread horizontally, while the upper shorter ones point forward and completely hide the shoot. The egg-shaped cones, 3 to 4 inches long and about 2 inches wide, are purple when young. It is one of the rarest of the silver firs. (Adapted from Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 123.)

Annona muricata (Annonaceae), 47108. **Soursop.** From Colombia. Presented by Mr. M. T. Dawe, San Lorenzo. "The **guanabana,** or **soursop,** is one of the finest sherbet fruits in existence. Its large, spiny, white-fleshed fruits are too acid to be eaten out of hand, but the juice can be sqeezed out and used to prepare a refreshing drink, a water ice, an ice cream, or the famous Habana 'champola' (a mixture of **guanabana** juice and milk, sweetened to taste). While the tree is too tender for any part of the United States except extreme south Florida, it succeeds in nearly all tropical countries, and should be more widely cultivated. When grown from seed, however, the plants are very often shy bearers and it will be necessary to select the most desirable varieties and propagate them by budding and grafting before **guanabana** culture can be commercially profitable. It is worth while to test all the different strains of this fruit which can be obtained, in order to find superior ones worthy of vegetative propagation." (Popenoe.)

Aristolochia ringens (Aristolochiaceae), 47118. **Gallito.** From Panama. Presented by Mr. G. F. Dietz, Las Sabanas. "Seeds of a vine from Jamaica called **Gallito.**" (Dietz.)

A tall, slender, twining, glabrous plant with broadly orbicular-reniform leaves dull pale green above and glaucous below. The flowers are from 7 to 10 inches long, marbled and reticulated with black-purple. It is found in Venezuela and in the West Indies. (Adapted from Curtis's Botanical Magazine, pl. 5700.)

Callitris cupressiformis (Pinaceae), 47151. From Richmond, Victoria, Australia. Seeds presented by Mr. F. H. Baker. "Grows in sand ridges where there is a small rainfall. It is a fine tree." (Baker.)

"This pine is described by Col. W. V. Legge in a report on 'The Tasmanian Cypress Pine,' (published in 1911). According to this paper, the tree is confined mainly to the coast where it does well on poor soils. It seems to have a slow growth but in time reaches a height of 100 feet and a diameter of about 2½ feet. In spite of the fact that it is chiefly a warm climate tree it also thrives in some of the colder parts of Tasmania where there is considerable frost. It has a plain whitish wood without figure and with little difference in color between the sapwood and the heartwood. Its grain is hard and close; and the wood is exceedingly durable. It is largely used for piles, telegraph poles, and in general construction work. It not infrequently grows in mixture with eucalyptus and when grown in the forest under moderate light conditions its form is that of a sharp cane which is tall in proportion to both the diameter and the spread of the lateral branches. There are all gradations from this form to the spreading, bushy tree found in the open. Since Florida is apparently the region in the United States best adapted to this species, I would advise growing some at Miami for experimental planting by the Service on the Florida National Forest. Although the tree is widely used for a great variety of purposes in Tasmania, I doubt if it would prove superior to our own conifers, and believe that the chief advantage in introducing it into Florida would probably be to furnish a comparatively soft, light wood for local use." (Zon.)

Elaeis guineensis (Phoenicaceae), 47124. **African oil palm.** From Java. Seeds presented by the Director, Botanic Gardens, Buitenzorg. The value, extent, and importance of the palm and palm-kernel oil industry of West Africa is but faintly realized by persons other than those directly interested in the trade. The amount of oil annually exported from British West Africa alone in 1915 was about 110,000 tons, and of kernels, 220,000 tons. The average price in Liverpool for kernels during the months preceding the war was about $100.00 per ton, and for palm oil $145.00 per ton. The palm tree from which the fruits are obtained is indigenous to the western coast of tropical Africa, and grows in enormous quantities from 300 to 400 miles into the interior.

The trees are 30 feet or more in height, and begin to bear in the third or fourth year. The soft, fibrous, outer covering of the fruit contains the thick, orange-red palm-oil, and the inner hard part or palm nut contains the palm kernel, a hard, white, nutty body which yields about 50 per cent of palm-kernel oil. This palm-kernel oil is used in making oleomargarine, cooking oils, and also fine toilet soaps, while the palm oil is used in the manufacture of cheaper soaps, candles, lubricating oils, etc. Although there are now on the market several machines which, it is claimed, are capable of dealing with the fruits in large quantities, they have met with very little practical success. Machinery will doubtless be invented in the next few years which will meet all demands. (Adapted from Commerce Reports, Oct. 2, 1915, Report on Palm and Palm Oil Industry, Consul Wm. J. Yerby, Dakar, Senegal.)

Hibiscus huegelii wrayae (Malvaceae), 47190. From South Australia. Seeds presented by Mr. Edwin Ashby, "Wittunga", Blackwood. "From the Gawler Ranges, South Australia. A tall shrub, bearing large, mauve-colored flowers. This is the handsomest of all the Australian 'Desert Roses.'" (Ashby.)

Hibiscus sabdariffa (Malvaceae), 47119. **Roselle.** From Florida. Presented by Mr. J. R. Fraser, Ramrod Key. "In my experiments with **roselle,** I observed one plant that seemed somewhat superior to the others, and after the first picking, I let it mature its seed. The first picking yielded 8 pounds of fruit (the usual yield is about 4 pounds of fruit per plant) and the second picking yielded 10 pounds of fruit, a total of 18 pounds per plant. The calyces on this plant were $2\frac{1}{4}$ inches in length by $1\frac{1}{2}$ inches in diameter at the base." (Fraser.)

Indigofera australis (Fabaceae), 47152. From Richmond, Victoria, Australia. Seeds presented by Mr. F. H. Baker. "Native indigo plant,– a beautiful shrub, with violet flowers." (Baker.)

An erect-branching shrub, 2 to 4 feet high, with pinnately compound leaves. The nine to eleven leaflets, about three-fourths of an inch long, vary from nearly linear to almost orbicular, and the showy red flowers are borne in dense racemes. (Adapted from Bentham, Flora Australiensis, vol. 2, p. 199.)

Kennedya comptoniana (Fabaceae), 47191. From Blackwood, South Australia. Seeds presented by Mr. Edwin Ashby, "Wittunga." "This is a fine climber. The sprays of deep violet flowers are very long, and the leaves are more deeply cut than in the variety around Perth, W. Australia." (Ashby.)

Mimusops caffra (Sapotaceae), 47099. From Africa. Presented by Mr. J. Burtt-Davy, Johannesburg. A somewhat hoary or glaucous evergreen tree or shrub forming a large proportion of the sea-dune vegetation, but also extending inland on sandy soils. On the dunes it grows down to the watermark, fully exposed to sea winds and, where these winds prevail, is consequently usually dwarfed and heavily branched from the base. In shelter it gets up to about 10 meters (33 ft.) in height and 30 to 45 centimeters (11¾ to 17¾ in.) in diameter, but even there it is heavily branched and very gnarled and crooked, and consequently yields first-rate knees, etc., for boat-building. The leaves are firmly coriaceous, and widely obovate. The flowers are usually in clusters of 2 to 4 in the axils along the branch. The fruit is 2 centimeters (¾ in.) long, tapering to the point, red, and is relished by children. Abundant along the coast and through M'Chopes; as also in Cape Colony and Natal. (Adapted from Sim, Forest Flora Portuguese East Africa, p. 80.)

Nephelium lappaceum (Sapindaceae), 47196 & 47197. **Rambutan.** From Buitenzorg, Java. Seeds presented by the Director, Botanic Garden. "While perhaps not equaling its near relative, the litchi, the **rambutan** is one of the best fruits of the Malayan region. The late Dr. Treub of Java preferred it to the mangosteen, although it is not so esteemed by the majority of Europeans. It is a handsome fruit, and one which can bear a considerable amount of handling; hence it should be possible to market it advantageously, once it is produced in tropical America. Like the mangosteen, the durian, and the litchi, its introduction into the American tropics has not been given sufficient attention. There seems to be no reason why all of these fruits and numerous others from the Malayan region should not succeed in parts of Porto Rico, Cuba, and tropical America in general. The mangosteen, invariably considered one of the most delicate and exacting of Malayan fruit trees, has fruited successfully both in Jamaica and Dominica. The **rambutan** is seen in almost every garden about Singapore

and Penang. The tree grows to 35 or 40 feet in height, is erect, and stately in appearance, with compound leaves composed of five to seven pairs of oblong leaflets 4 inches in length. It is commonly stated that there are 8 or 10 varieties, but these appear to differ very little from one another, and are rarely propagated. The fruits are produced in pendent terminal clusters. They are the size of large plums, bright crimson in color, sometimes shaded with green or orange. The surface is covered with soft spines, half an inch long. Tearing off the thin, leathery pericarp, one finds a glistening white oval of juicy pulp, very refreshing to eat, with a pleasantly subacid flavor suggesting that of the grape." (Popenoe.)

Olearia teretifolia (Asteraceae), 47192. From Blackwood, South Australia. Seeds presented by Mr. Edwin Ashby, "Wittunga." "A bright green, almost broomlike shrub, native of Kangaroo Island, this state. It grows to 5 feet in height and is covered with masses of small, white flowers which give the bush a snowlike appearance. It stands clipping well and should make a good dwarf border hedge." (Ashby.)

Pyrus fauriei (Malaceae), 47155. **Pear.** From Japan. Seeds presented by the Arnold Arboretum, Jamaica Plain, Mass. **Wilson's No. 11256.** A thorny shrub with small leaves, $2\frac{1}{2}$ to 3 centimeters (1 to $1\frac{1}{4}$ in.) long, smooth above and sparingly pubescent beneath, smooth young fruits about 4 millimeters through, and with a fugacious calyx (one lasting a very short time). This species is very striking because of its extremely small leaves, flowers and fruit. (Adapted from Schneider, Illustriertes Handbuch der Laubholzkunde, vol. 1, p. 666.)

Pyrus sp. (Malaceae), 47093. **Pear.** From Florida. Presented by Mr. Martin Campas, St. Petersburg. "Two pear trees which came as cuttings from Spain four years ago, and which I grafted on the Kieffer pear. Last year and this year they bore a heavy crop of large fruits weighing about one pound each and ripening in October and November here in south Florida. The fruit resembles the cooking pear in its hard flesh, but it is juicy and tender to eat out of hand. The tree is prolific and thrifty, with a close, dense top, and the branches are ascending. The leaves are dark green and free from disease." (Campas.)

"I was favorably impressed with this pear. It is

attractive in appearance and in texture and quality. It seemed to me to be a very great improvement over the Kieffer and every other variety that I know which is adapted to the far south. If the tree is satisfactory and is reasonably resistant to blight, it seems to me that there may be something in this variety which would be worth considering very carefully in connection with the planting of pears in the south." (H. P. Gould.)

Rhoicissus erythrodes (Vitaceae), 47100. From Africa. Presented by Mr. J. Burtt-Davy, Johannesburg. A shrubby, suberect plant, native of Abyssinia. The leathery, compound leaves are made up of 3 leaflets, the terminal one obovate, 2 to 3 inches long, the lateral ones broadly ovate; all are smooth and deep green above, but covered with fine gray pubescence below. The scarlet flowers occur in small, lateral cymes, and the globose fruits are about half an inch in diameter. (Adapted from Oliver, Flora of Tropical Africa, vol. 1, p. 401.)

Salvia hispanica (Menthaceae), 47126. **Chia.** From Mexico. Seeds procured by Mr. Cornelius Ferris, Jr., American Consul, San Luis Potosi. "This seed was obtained in the semitropical region of the state of San Luis Potosi and is known simply as **chia**. It is the kind used in making the drink called 'chia'. (Ferris.)

"**Chia** is widely used in Mexico for the preparation of a 'refresco', or as an addition to 'refrescos' prepared with limes or other fruits. I have never observed the plant in cultivation. The seed, which is often seen on sale in the markets, is similar in appearance to mustard seed, except in its grayish color. When soaked in water it behaves somewhat as tapioca, each seed becoming surrounded by a transparent gelatinous substance almost without taste. A glass of sweetened water to which has been added a few **chia** seeds is considered a good drink; it lacks character, however, and may be considered much better when lime juice is one of the ingredients. This drink is a peculiar thing, difficult of description, but not unworthy of introduction into other countries. It may be mentioned that the state of Chiapas takes its name from 'chia', meaning 'place where the **chia** abounds'." (Popenoe.)

Sterculia diversifolia (Sterculiaceae), 47153. **Kurrajong.** From Richmond, Victoria, Australia. Seeds presented by Mr. F. H. Baker. Found in Victoria, New South Wales, and Queensland. Useful as human food, as a forage

crop and as a fiber plant. The tap roots of young trees and the young roots of old trees are used as food by the aborigines. When boiled, the roots have a flavor similar to that of turnips, but sweeter. The seeds of this and other species are edible and make a good beverage. Cattle and sheep are fond of the leaves and branches, and in some dry seasons have existed for long periods on scarcely anything else. In parts of Riverina (New South Wales) the trees are cut down as required for this purpose. A strong fiber is obtained from the bark; it is used by the aborigines for making fishing nets, both in East and West Australia. (Adapted from Maiden, Useful Native Plants of Australia, pp. 59, 140, and 633.)

Zea mays (Poaceae), 47109 to 47114. **Corn.** From Brazil. Presented by Mr. H. A. Cardinell, Rio de Janeiro. "A rather curious collection of corn grown by the various Indian tribes from the states of Matto Grosso and Amazonas. This corn came from an exhibit prepared by a commission from that district for the last national corn show held in Rio de Janeiro last August (1918). The commission informed me that this corn is absolutely wild in Matto Grosso and the Indians have made no attempt at its improvement. The ears I am sending were grown by the Amazon Indians over 1,500 kilometers (930 miles) from the Madeira River which is a branch of the River Amazon and forms half of the boundary between the two above-named states; that is, it was brought 930 miles before it reached that river. This will give you an idea of the distance this corn traveled before reaching Rio." (Cardinell.)

Zea mays (Poaceae), 47202. **Corn.** From Zamboanga, Philippine Islands. Presented by Mr. P. J. Wester, Agricultural Advisor. "A corn variety discovered on a recent visit to Kudurangan, Cotabato, Mindanao, that matures 72 days from sowing and so may be of value to your corn breeders. This corn has been grown for many years (no one knows how many) by one of the wild tribes in Cotabato." (Wester.)

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Bureau of Plant Industry.
Office of Foreign Seed and Plant Introduction.
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